

Appl. No. 10/535,058
Amdt. Dated April 19, 2007
Reply to Office Action of January 19, 2007

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REMARKS

Claims 1 to 8 are currently pending in the present application. Claims 1 are amended herein. Claim 2 is cancelled. No new matter is added by the amendments or the new claims.

Claims 1 to 8 stand rejected by the Action under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent Application No. 2002/0181661 to Vafi et al. (hereinafter "Vafi"). Applicants respectfully submit that Vafi does not expressly or inherently disclose all of the elements set forth in independent claim 1. Thus, Vafi does not anticipate claim 1 or claims 3 to 8, which depend therefrom.

It is an object of the present invention to provide an x-ray detector having a photoconductor layer which enables image signals to be produced at a higher rate than known two-dimensional image detectors achieve. Accordingly, claim 1 now claims an x-ray examination apparatus comprising an x-ray source and an x-ray detector, the x-ray detector having a photoconductor to derive electric charges from incident x-radiation and read-out elements that derive electrical pixel-signals from the electric charges of the photoconductor and an output circuit to output the electrical pixel-signal from the read-out elements, wherein a central group of the read-out elements is located in a central region of the x-ray detector and a peripheral group of the read-out elements is located in a peripheral region that surrounds the central region, the x-ray examination apparatus further having a selection system to select the central group of read-out elements so as to supply pixel-signals from the central group of read-elements to the output circuit, wherein the selection system includes an x-ray shielding member that shields the peripheral region of the photoconductor from incident x-radiation.

Vafi fails to disclose an x-ray examination apparatus having a selection system to select the central group of read-out elements so as to supply pixel-signals from the central group of read-elements to the output circuit, as claimed by claim 1. While the Action

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cites calibration processor 302 of Vafi as providing such a selection system, Applicants respectfully point out that Vafi merely discloses “[a] calibration processor 302 [that] includes communication interface or module 304, a keyboard 305, a central processing unit (CPU) 306, a memory 308 and a display unit 309, such as a computer monitor, all coupled by a bus 307” (paragraph 13). However, calibration processor 302 of Vafi fails provide a selection system for selecting the central group of read-out elements so as to supply pixel-signals from the central group of read-elements to the output circuit, as is claimed by claim 1. Moreover, Vafi fails to disclose that the selection system includes an x-ray shielding member that shields the peripheral region of the photoconductor from incident x-radiation, as is now claimed by claim 1. Accordingly, for at least these reasons, independent claim 1 is patentable over Vafi.

Dependent claims 3 to 8 depend from claim 1 and provide further features, thus claims 3 to 8 are clearly distinguishable over Vafi for at least the reasons discussed with respect to claim 1. Accordingly, the applicants respectfully request that the rejections under 35 U.S.C. § 102(b) of claim 1 and claims 3 to 8 be withdrawn and claims 1 and that claims 3 to 8 be allowed.

Claims 2, 3 and 5 to 8 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Vafi in view of U.S. Patent Application No. 2001/0005409 to Gohno et al. (hereinafter “Gohno”). Claim 2 is cancelled, accordingly the rejection of claim 2 is moot.

The present invention is directed to an x-ray examination apparatus provided with the selection system to select the central group of read-out elements so as to supply electrical pixel-signals from the central group of read-elements. Consequently, electric charges from the read-out elements of the peripheral region are not allowed to the output circuit. An output image signal is subsequently formed from the electrical pixel-signals that are supplied to the output circuit. Accordingly, transient components of the electrical pixel-signals are avoided in the output image signal and perturbations or corruptions of

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the output image signal due to such transient components are avoided to a large extent. Hence, the x-ray examination apparatus of the subject application is able to produce the output image signal at a fast rate, so as to produce successive images of a high diagnostic quality at a fast rate. The high diagnostic quality implies that small details of low contrast are rendered well visible, in particular because image corruptions due to transient components of the electrical pixel-signals hardly occur. Accordingly, claim 1 claims a selection system for selecting the central group of read-out elements so as to supply pixel-signals from the central group of read-elements to the output circuit. Claim 1 now also claims that the selection system includes an x-ray shielding member that shields the peripheral region of the photoconductor from incident x-radiation.

Vafi fails to disclose the invention as claimed in claim 1 for the reasons discussed. Gohno also fails to disclose a selection system for selecting the central group of read-out elements so as to supply pixel-signals from the central group of read-elements to the output circuit. Gohno does disclose a collimator 6 having a slit for defining a range of impinging X-rays. Gohno further discloses that collimator 6 is made of an X-ray screening material, and is comprised of a collimator 6a for defining in the Z-axis direction a range of impinging X-rays emitted from the X-ray tube 4, and a collimator 6b disposed between the collimator 6a and the X-ray tube 4 and comprised of two fixed screening plates for defining a range of impinging X-rays (fan angle) in the longitudinal direction of the detector 8. However, Gohno does not disclose selecting a *central group* of read-out elements so as to supply pixel-signals from the central group of read-elements to the output circuit, thereby solving the problem addressed by the subject application of producing an output image signal at a fast rate, and thereby to produce successive images of a high diagnostic quality at a fast rate. Thus, Applicants respectfully submit that Vafi and Gohno, when combined as suggested by the Action, fail to disclose all elements of independent claim 1. The cited combination therefore also fails to render obvious independent 3 to 8, which depend from claim 1. Applicants therefore request that the rejections under 35 U.S.C. § 103(a) of claims 3 to 8 be withdrawn.

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It is also respectfully noted that to establish a prima facie case of obviousness, the following criteria must be met: (1) there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the references; (2) there must be a reasonable expectation of success found in the prior art, not the applicant's disclosure; and (3) the prior art references must teach or suggest all of the limitations(s). M.P.E.P. § 2142. It is further respectfully noted that a "prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. M.P.E.P. § 2142.02, citing W.L. Gore & Assoc., Inc. v. Garlock, Inc., 721 F2d 1540 (Fed. Cir. 1983), cert. denied, 496 U.S. 851 (1984). Applicants submit that there is no suggestion or motivation in either Vafi or Gohno to modify the references. Specifically, Vafi relates to x-ray detectors and more specifically relates to techniques for testing such detectors, while Gohno relates to a multi-slice X-ray CT apparatus and a method of controlling the same for obtaining a plurality of tomographic images of a subject using X-rays. The technologies of Vafi and Gohno are varied such that there is no suggestion to modify the references nor is there a reasonable expectation of success found in the prior art.

Applicants therefore request that the rejections under 35 U.S.C. § 103(a) of claims 3 to 8 be withdrawn.

Conclusion

In view of the foregoing, Applicants respectfully submit that the specification, the drawings and all claims presented in this application are currently in condition for allowance. Accordingly, Applicants respectfully request favorable consideration and that this application be passed to allowance.

Should any changes to the claims and/or specification be deemed necessary to place the application in condition for allowance, the Examiner is respectfully requested to contact the undersigned to discuss the same.

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Applicants' representative believes that this response is being filed in a timely manner. In the event that any extension and/or fee is required for the entry of this amendment the Commissioner is hereby authorized to charge said fee to Deposit Account No. 14-1270. An early and favorable action on the merits is earnestly solicited.

If the Examiner should have any questions concerning this communication or feels that an interview would be helpful, the Examiner is requested to call David Barnes, Esq., Intellectual Property Counsel, Philips North America Corporation at the number below.

Respectfully submitted,

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